

SUPERMARKET SALES ANALYSIS REPORT

Introduction

This report presents the findings from the analysis and visualization of a supermarket sales dataset. The primary objective of the project was to evaluate the sales performance of three major branches of the supermarket over a three-month period.

By analysing various aspects of the sales data, the report aims to identify trends, provide insights into the supermarket's performance, and offer actionable recommendations for informed decision-making.

Data Source

The dataset utilized for this analysis was sourced from Kaggle. The data includes sales records from the supermarket's three branches, capturing various sales metrics, customer demographics, and payment methods.

Methodology

The analysis process involved several key steps, including data loading, initial preparation, data cleaning, exploratory data analysis (EDA), and visualization.

Microsoft Excel was the primary tool used throughout this project to perform various functions such as data import, cleaning, analysis, and visualization.

Data Loading and Initial Preparation

Initially, the dataset was loaded into Microsoft Excel to facilitate data access for subsequent analysis. To enhance readability and navigation, freeze panes were applied to the top row to keep column headers visible during scrolling.

Supermarket Sales - EXCEL PROJECT																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	Invoice ID	Branch	Date	Month	Time	City	Customer type	Gender	Product line	Unit price	Quantity	Cost of Goods Sold	Tax 5%	Total Revenue	Payment	Gross Income	Rating	
2	750-67-8428 A		05 January	January	13:08:00	Yangon	Member	Female	Health and beauty	\$ 74.69	7	5	522.83	\$ 26.14	\$ 548.97	Ewallet	\$ 26.14	9.1
3	226-31-3081 C		08 March	March	10:29:00	Naypyitaw	Normal	Female	Electronic accessories	\$ 15.28	5	5	76.40	\$ 3.82	\$ 80.22	Cash	\$ 3.82	9.6
4	631-41-3108 A		03 March	March	13:23:00	Yangon	Normal	Male	Home and lifestyle	\$ 46.33	7	5	324.31	\$ 16.22	\$ 340.53	Credit card	\$ 16.22	7.4
5	123-19-1176 A		27 January	January	20:33:00	Yangon	Member	Male	Health and beauty	\$ 58.22	8	5	465.76	\$ 23.29	\$ 489.05	Ewallet	\$ 23.29	8.4
6	373-73-7910 A		08 February	February	10:37:00	Yangon	Normal	Male	Sports and travel	\$ 86.31	7	5	604.17	\$ 30.21	\$ 634.38	Ewallet	\$ 30.21	5.3
7	699-14-3026 C		25 March	March	18:30:00	Naypyitaw	Normal	Male	Electronic accessories	\$ 85.39	7	5	597.73	\$ 29.89	\$ 627.62	Ewallet	\$ 29.89	4.1
8	355-53-5943 A		25 February	February	14:36:00	Yangon	Member	Female	Electronic accessories	\$ 68.84	6	5	413.04	\$ 20.65	\$ 433.69	Ewallet	\$ 20.65	5.8
9	315-22-5665 C		24 February	February	11:38:00	Naypyitaw	Normal	Female	Home and lifestyle	\$ 73.56	10	5	735.60	\$ 36.78	\$ 772.38	Ewallet	\$ 36.78	8.0
10	665-32-9167 A		10 January	January	17:15:00	Yangon	Member	Female	Health and beauty	\$ 36.26	2	5	72.52	\$ 3.63	\$ 76.15	Credit card	\$ 3.63	7.2
11	692-92-5582 B		20 February	February	13:27:00	Mandalay	Member	Female	Food and beverages	\$ 54.84	3	5	164.52	\$ 8.23	\$ 172.75	Credit card	\$ 8.23	5.9
12	351-62-0822 B		06 February	February	18:07:00	Mandalay	Member	Female	Fashion accessories	\$ 14.48	4	5	57.92	\$ 2.90	\$ 60.82	Ewallet	\$ 2.90	4.5
13	529-56-3974 B		09 March	March	17:03:00	Mandalay	Member	Male	Electronic accessories	\$ 25.51	4	5	102.04	\$ 5.10	\$ 107.14	Cash	\$ 5.10	6.8
14	365-64-0515 A		12 February	February	10:25:00	Yangon	Normal	Female	Electronic accessories	\$ 46.95	5	5	234.75	\$ 11.74	\$ 246.49	Ewallet	\$ 11.74	7.1
15	252-56-2699 A		07 February	February	16:48:00	Yangon	Normal	Male	Food and beverages	\$ 43.19	10	5	431.90	\$ 21.60	\$ 453.50	Ewallet	\$ 21.60	8.2
16	829-34-3910 A		29 March	March	19:21:00	Yangon	Normal	Female	Health and beauty	\$ 71.38	10	5	713.80	\$ 35.69	\$ 749.49	Cash	\$ 35.69	5.7
17	299-46-1805 B		15 January	January	16:19:00	Mandalay	Member	Female	Sports and travel	\$ 93.72	6	5	562.32	\$ 28.12	\$ 590.44	Cash	\$ 28.12	4.5
18	656-95-9349 A		11 March	March	11:03:00	Yangon	Member	Female	Health and beauty	\$ 68.93	7	5	482.51	\$ 24.13	\$ 506.64	Credit card	\$ 24.13	4.6
19	765-26-6951 A		01 January	January	10:39:00	Yangon	Normal	Male	Sports and travel	\$ 72.61	6	5	435.66	\$ 21.78	\$ 457.44	Credit card	\$ 21.78	6.9
20	329-62-1586 A		21 January	January	18:00:00	Yangon	Normal	Male	Food and beverages	\$ 54.67	3	5	164.01	\$ 8.20	\$ 172.21	Credit card	\$ 8.20	8.6
21	319-50-3348 B		11 March	March	15:30:00	Mandalay	Normal	Female	Home and lifestyle	\$ 40.30	2	5	80.60	\$ 4.03	\$ 84.63	Ewallet	\$ 4.03	4.4
22	300-71-4605 C		25 February	February	11:24:00	Naypyitaw	Member	Male	Electronic accessories	\$ 86.04	5	5	430.20	\$ 21.51	\$ 451.71	Ewallet	\$ 21.51	4.8
23	371-85-5789 B		05 March	March	10:40:00	Mandalay	Normal	Male	Health and beauty	\$ 87.98	3	5	263.94	\$ 13.20	\$ 277.14	Ewallet	\$ 13.20	5.1
24	273-16-6619 B		15 March	March	12:20:00	Mandalay	Normal	Male	Home and lifestyle	\$ 33.20	2	5	66.40	\$ 3.32	\$ 69.72	Credit card	\$ 3.32	4.4
25	636-48-8204 A		17 February	February	11:15:00	Yangon	Normal	Male	Electronic accessories	\$ 34.56	5	5	172.80	\$ 8.64	\$ 181.44	Ewallet	\$ 8.64	9.9
26	549-59-1358 A		02 March	March	17:36:00	Yangon	Member	Male	Sports and travel	\$ 88.63	3	5	265.89	\$ 13.29	\$ 279.18	Ewallet	\$ 13.29	6.0
27	227-03-5010 A		22 March	March	19:20:00	Yangon	Member	Female	Home and lifestyle	\$ 52.59	8	5	420.72	\$ 21.04	\$ 441.76	Credit card	\$ 21.04	8.5
28	649-29-6775 B		08 February	February	15:31:00	Mandalay	Normal	Male	Fashion accessories	\$ 33.52	1	5	33.52	\$ 1.68	\$ 35.20	Cash	\$ 1.68	6.7
29	189-17-4241 A		10 March	March	12:17:00	Yangon	Normal	Female	Fashion accessories	\$ 87.67	2	5	175.34	\$ 8.77	\$ 184.11	Credit card	\$ 8.77	7.7
30	145-94-9061 B		25 January	January	19:48:00	Mandalay	Normal	Female	Food and beverages	\$ 88.36	5	5	441.80	\$ 22.09	\$ 463.89	Cash	\$ 22.09	9.6

Data Cleaning and Formatting

Data cleaning was essential to ensure the accuracy and reliability of the analysis. This step included:

- ✓ Checking for and correcting spelling errors in categorical data (e.g., product line names, payment methods, city names).
- ✓ Identifying and removing empty rows and extra spaces.
- ✓ Addressing missing values to maintain data integrity.
- ✓ Removing duplicate records to ensure each Invoice ID was unique.
- ✓ Formatting date and currency data for consistency and readability.

Exploratory Data Analysis (EDA)

The EDA aimed to answer several key questions:

1. What is the highest performing branch?
2. Which payment method is preferred by customers?
3. What products are top-sellers?
4. What is the overall sales trend?

Insights

The analysis provided several significant insights:

- ✓ **Top-Performing Branch:** Branch C in Naypyitaw emerged as the highest performing branch based on sales revenue.
- ✓ **Payment Method Preference:** E-wallets were identified as the most preferred payment method among customers.
- ✓ **Top-Selling Products:** The categories of electronic accessories and food & beverages were identified as the top-selling products, with food & beverages receiving the highest customer ratings.
- ✓ **Sales Trends:** January recorded the highest sales revenue, followed closely by March, while February showed the lowest sales revenue.

Recommendations

Based on the analysis and insights gained, the following recommendations are proposed:

1. **Inventory Expansion:** The supermarket should consider expanding its inventory in electronic accessories and food & beverages to capitalize on their popularity.
2. **Quality Maintenance:** Maintaining high standards in food & beverages is crucial for sustaining customer satisfaction and loyalty.
3. **Targeted Marketing Strategies:** To address the low sales revenue observed in February, the supermarket could implement targeted marketing strategies during this period, such as seasonal promotions, limited-time offers, and events to encourage customer engagement.

Visualization and Dashboard

Data visualizations were created to provide a clear understanding of sales performance. Key visualizations included:

1. Clustered column charts for total sales by branch and customer demographics.
2. A pie chart illustrating sales by payment method.
3. Line charts depicting sales trends over time.
4. Pivot tables for detailed analysis of sales metrics.

TOTAL SALES BY BRANCH

BRANCH	Sum of Total Revenue
A	106200.3705
Yangon	106200.3705
B	106197.672
Mandalay	106197.672
C	110568.7065
Naypyitaw	110568.7065
Grand Total	322966.749

CUSTOMER DEMOGRAPHICS

CUSTOMER TYPE	Count of Invoice ID
Member	501
Female	261
Male	240
Normal	499
Female	240
Male	259
Grand Total	1000

SALES BY PAYMENT METHOD

PAYMENT METHOD	Count of Invoice ID	Sum of Total Revenue
Cash	344	112206.57
Credit card	311	100767.072
Ewallet	345	109993.107
Grand Total	1000	322966.749

PRODUCT LINE PERFORMANCE

PRODUCT LINE	Sum of Quantity	Sum of Total Revenue
Electronic accessories	971	54337.5315
Fashion accessories	902	54305.895
Food and beverages	952	56144.844
Health and beauty	854	49193.739
Home and lifestyle	911	53861.913
Sports and travel	920	55122.8265
Grand Total	5510	322966.749

SALES TREND OVER TIME

DATES	Sum of Total Revenue
Jan	116291.868
Feb	97219.374
Mar	109455.507
Grand Total	322966.749

TOP-SELLING PRODUCTS

PRODUCT LINE	Sum of Quantity	Average of Rating
Electronic accessories	971	6.92
Food and beverages	952	7.11
Sports and travel	920	6.92
Home and lifestyle	911	6.84
Fashion accessories	902	7.03
Health and beauty	854	7.00
Grand Total	5510	6.97

COST ANALYSIS

PRODUCT LINE	Sum of COGS
Electronic accessories	51750.03
Fashion accessories	51719.9
Food and beverages	53471.28
Health and beauty	46851.18
Home and lifestyle	51297.06
Sports and travel	52497.93
Grand Total	307587.38



Conclusion

The supermarket sales analysis provided valuable insights into the performance of the supermarket's branches, payment preferences, and product sales. The recommendations derived from the analysis can guide the supermarket in making informed decisions to enhance operational efficiency and customer satisfaction.

Implementing the suggested strategies will likely contribute to improved sales performance and growth in the competitive retail environment.

Thank you for your attention to this report.